ABSTRACT

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Title of Diploma Thesis **Synthesis of new water-soluble scavenger for singlet oxygen**

Scavengers are compounds that scavenge, remove or quench desirable or undesirable products in reactions. They scavenge a singlet oxygen generated in photosenzitized reactions and form corresponding products. The singlet oxygen is then detected on the bases of resulting products and quantum yield of singlet oxygen production is determined. Selectivity to a singlet oxygen and forming stable products are required features of all scavengers. The hydrophilic character of scavengers is a great advantage because of the possibility to perform experiments in aqueous, *i.e.* biologically friendly, medium. Uncharged hydrophilic scavengers are highly appreciated because cationic and anionic scavengers might interact with the molecule for which quantum yield of singlet oxygen is measured. The goal of the thesis was to prepare an uncharged hydrophilic scavenger – a derivate of anthracene.

This compound was designed by combining several known structural elements. The bromination of 9,10-dimethylanthacene was the first step of the synthesis. The product was subsequently let to react with C-nucleophile (diethylmalonate) in order to introduce a functional group, *i.e.* carboxylic group in the form of ester, for further binding of hydrophilic substituent *via* aminolysis of the ester.

One hydrophilic uncharged molecule was synthesized, which might be used as a scavenger of a singlet oxygen in the future.